



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/699,480

10/30/2003

Roy Clark

03-0012

3144

67059

7590

09/18/2007

THE BOEING COMPANY
c/o FELIX L. FISCHER, ATTORNEY AT LAW
1607 MISSION DRIVE
SUITE 204
SOLVANG, CA 93463

EXAMINER

FICK, ANTHONY D

ART UNIT

PAPER NUMBER

1753

MAIL DATE

DELIVERY MODE

09/18/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/699,480

Applicant(s)

CLARK, ROY

Examiner

Anthony Fick

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,10 and 12-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,10 and 12-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3, 6 through 8, 10, 12, 13 and 16 through 18 rejected under 35 U.S.C. 102(e) as being anticipated by Lawheed (U.S.P.G.Pub 2003/0201008).

Lawheed discloses an optical device for conversion of solar energy as shown in figures 1 and 26.

Regarding claim 1, figure 26 shows a Fresnel lens mounted over a solar cell to focus sunlight, 364 and solar cell 190, and a secondary non-imaging concentrating element mounted intermediate the Fresnel lens and the solar cell to redirect sunlight, 372 (paragraphs 0115 and 0116). The figure further shows sunlight receiving radiation from the Fresnel lens without being reflected by the second concentrating element (wavy lines). The figure also shows the second element having an exit aperture sized to the periphery of the solar cell.

Regarding claim 3, the secondary non-imaging concentrator has the same structure as applicants and will perform the same redirection of light required by the claim.

Regarding claim 6, figure 26 shows a circular Fresnel lens.

Regarding claims 7 and 8, figure 26 shows the secondary element is a V-trough and the line of the V-trough will match a straight line fit to one of an infinite amount of possible hyperbolic concentrators.

Regarding claim 10, figure 26 shows a Fresnel lens mounted over a solar cell to focus sunlight, 364 and solar cell 190, and a secondary non-imaging concentrating element mounted intermediate the Fresnel lens and the solar cell to redirect sunlight, 372. The figure also shows the second element having an exit aperture sized to the periphery of the solar cell and an entrance aperture sized to receive edge rays for some misalignment angle. Also, it is the position of the examiner that the required "only one reflection" will occur within the structure of Lawheed for some misalignment angle, and thus meets the structural requirements of the claim.

Regarding claim 12, as stated above, it is the position of the examiner that the required "only one reflection" will occur within the structure of Lawheed for some misalignment angle, and thus meets the structural requirements of the claim.

Regarding claim 13, figure 26 further shows sunlight receiving radiation from the Fresnel lens without being reflected by the second concentrating element (wavy lines).

Regarding claim 16, figure 26 shows a circular Fresnel lens.

Regarding claims 17 and 18, figure 26 shows the secondary element is a V-trough and the line of the V-trough will match a straight line fit to one of an infinite amount of possible hyperbolic concentrators.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4, 5, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawheed as applied to claims 1, 3, 6 through 8, 10, 12, 13 and 16 through 18 above, and further in view of Mook (U.S. 7,081,584).

The disclosure of Lawheed is as stated above for claims 1, 3, 6 through 8, 10, 12, 13 and 16 through 18.

The difference between Lawheed and the claims is the requirement of a specific Fresnel lens.

Mook teaches an optical concentrator as shown in figure 12. Mook further teaches a variety of Fresnel lenses including curved, linear and circular (figures 15, 16B and 22).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the different types of Fresnel lenses as in Mook within the device of Lawheed because Mook teaches the lenses are functional equivalents to the circular Fresnel lens of Lawheed and thus the choice of a specific type is a design choice. Absent any unexpected results, it would be obvious to make such a selection as within the claims. Because Mook and Lawheed are concerned with Fresnel

concentrators for solar energy conversion, one would have a reasonable expectation of success from the combination. Thus the combination meets the claims.

Response to Arguments

5. Applicant's arguments with respect to claims 1, 3 through 8, 10 and 12 through 18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Fick whose telephone number is (571) 272-6393. The examiner can normally be reached on Monday - Friday 7 AM to 4 PM.

Art Unit: 1753

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Anthony Fick *ADF*
AU 1753
September 13, 2007


NAM NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700